

CLAIMS

1. A method for growing a single-crystal region of a III-V compound on a surface corresponding to a crystallographic plane of a single-crystal silicon substrate, comprising the steps of:
 - 5 growing by epitaxy on the substrate a single-crystal germanium layer;
etching in a portion of the thickness of the germanium layer an opening, the bottom of which corresponds to a single surface inclined with respect to said crystallographic plane or to several surfaces inclined with respect to said crystallographic plane; and
 - 10 growing the single-crystal III-V compound on the bottom of the opening.
2. The method of claim 1, wherein the single-crystal silicon substrate has an orientation and said inclined surface(s) is (are) inclined by an angle of substantially from 5 to 7 degrees with respect to said crystallographic plane.
- 15 3. The method of claim 1, wherein the single-crystal silicon substrate has an orientation and the bottom of the opening comprises two surfaces inclined by substantially from 5 to 7 degrees with respect to said crystallographic plane.
- 20 4. The method of claim 1, further comprising the step of growing on the single-crystal silicon substrate at least one layer of a silicon and germanium alloy on which the germanium layer is grown.
- 25 5. The method of claim 1, further comprising the step of growing an oxide layer on the germanium layer and of etching said oxide layer to form a relief area on said oxide layer, the shape of the surface of said relief area being transferred by etching into the germanium layer.
- 30 6. The method of claim 1, wherein the thickness of the germanium layer separating the bottom of the opening and the single-crystal silicon substrate is greater than 300 nanometers.

7. The method of claim 1, wherein the opening has a cross-section surface area of a few tens of square micrometers.

8. The method of claim 1, wherein the III-V compound is gallium arsenide.

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9. A device comprising a single-crystal silicon substrate comprising a surface corresponding to a crystallographic plane covered with a single-crystal germanium layer, wherein the germanium layer comprises at least one opening with a depth smaller than the thickness of the germanium layer, the bottom of the opening corresponding to a single surface inclined with respect to said cristallographic plane or to several surfaces inclined with respect to said cristallographic plane, said opening containing a III-V compound.

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10. The device of claim 9, wherein an electronic component is formed in the III-V compound.

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